



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/774,396

01/31/2001

David J. Lyon

M-9897 US

3069

23640

7590

01/28/2008

BAKER BOTTS, LLP

910 LOUISIANA

HOUSTON, TX 77002-4995

EXAMINER

MEINECKE DIAZ, SUSANNA M

ART UNIT

PAPER NUMBER

3692

NOTIFICATION DATE

DELIVERY MODE

01/28/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

debbie.allen@bakerbotts.com

Office Action Summary	Application No. 09/774,396	Applicant(s) LYON ET AL.	
	Examiner Susanna M. Diaz	Art Unit 3692	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,8,9 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8,9 and 12-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 30, 2007 has been entered.

Claim 1 has been amended.

Claims 1-5, 8, 9, and 12-14 are pending.

Response to Arguments

2. Applicant's arguments filed October 30, 2007 have been fully considered but they are not persuasive.

Applicant argues that "Lilly does not teach or suggest generating 'a material delivery schedule in response to an outstanding customer order' as required by claim 1. In fact, the system in Lilly is for generating a delivery date of a work order. Lilly at 4:39-44." (Page 6 of Applicant's response) Looking at the passage of Lilly cited by the Applicant, Lilly states, "The scheduling system may be used to schedule all work orders that have been accepted by the manufacturer. The system may also be used to determine a proposed schedule and/or a proposed delivery date for a potential work order in response to an inquiry from a customer or other interested person." (Lilly:

column 4, lines 38-44) Lilly is clearly scheduling the manufacturing aspect of the ordered products. Applicant continues to explain that Lilly schedules the work orders based on resource availability information for each work order. "If materials are not available, Lilly discusses adjusting the start date/time for an operation of the work schedule according to the lead time of obtaining the materials." (Page 6 of Applicant's response) The Examiner submits that current inventory levels and the material delivery schedule are evaluated in order to assess if scheduled work orders may be completed as scheduled or if they must be postponed until materials are projected to be available, e.g., based on a material lead time (Lilly: column 7, lines 1-5; column 8, lines 33-67). Knowing if materials are currently available and when materials are going to be delivered implies that a material delivery schedule is generated at some point. As work orders come in, Lilly evaluates the supply of a material in relation to its demand (col. 8, lines 32-67). The work orders include a want date (abstract) and Lilly can reschedule a master schedule to accommodate new work orders that have a higher priority than previously scheduled work orders (col. 9, lines 1-25). Effectively, the assignment of available and soon-to-arrive materials to each work order is a scheduling of the material delivery to an outstanding customer order. For orders requiring more material than what is already available, "additional material must be obtained, and the start date/time may be rescheduled, taking into account the lead time necessary to obtain an additional quantity of the material." (Lilly: col. 8, lines 55-60) Clearly, additional materials may need to be ordered as new work orders come in. Lilly is constantly rebalancing material delivery schedules and work schedules to optimize fulfillment of the requested orders by

the desired order completion dates. Furthermore, Lilly states, "If, on the other hand, the lead time is less than or equal to the difference between the current date/time and the proposed start date/time, then the operation is scheduled for the proposed start date/time." (Lilly: col. 8, lines 63-67) When this condition is met, the work schedule is not affected directly by the material delivery schedule. Instead, both the work schedule and the material delivery schedule are directly responsive to an outstanding customer order.

Applicant argues that the Examiner has not treated the details of a "hub" for purposes of applying prior art (see pages 6-7 of Applicant's response). Applicant cites the following excerpt from the specification to define "hub":

The term hub is used herein to describe an intermediate business that agrees with the manufacturer to maintain high levels of inventory of materials that can be delivered to the manufacturer's factory on short notice upon request. The hub makes its own arrangements with suppliers to provide material to a storage location for hub inventory. A hub may be referred to as a Supplier Logistics Center (SLC). (Page 7, lines 24-28 of the Specification)

This excerpt is not a special definition with clearly defined metes and bounds. For example, the "hub" is defined more by a contractual relationship that exists between the hub entity and the manufacturer as well as the hub entity and its suppliers. The fact that the obtained inventory within the claim is "hub inventory" does not affect the manipulative steps of the claimed invention. In other words, regardless of which external source supplies the ordered materials, the scheduling details remain unaffected. The Examiner has treated the word "hub" on the basis of its merits;

however, "hub" has been determined to be nothing more than a non-functional descriptor of the inventory. Consequently, while it is interpreted as part of the claimed invention, it does not serve to patentably distinguish the currently claimed invention over the prior art. For example, the contractual agreements between the hub and manufacturer and the hub and suppliers do not come into play at all in the recited limitations. Whether the hub fulfills its contractual obligation to the manufacturer to "maintain high levels of inventory of materials that can be delivered to the manufacturer's factory on short notice upon request" does not affect the manipulative steps of the invention, including the scheduling functionality. Additionally, even if the Examiner were to read in this entire description of the "hub" from the specification, it is not clear how the contractual limitations would be read into the "hub inventory," especially since the specification only defines the role of the "hub." The "hub inventory" is merely inventory maintained by the hub, which for all intents and purposes, is merely an external entity in terms of the current claim scope. As discussed in the art rejection, Lilly can obtain inventory from an external source as needed. While Lilly's source is an external source and not a "hub" source *per se*, this difference is only found in the non-functional descriptive material and is not functionally involved in the manipulative steps of the invention nor does it alter the recited structural elements; therefore, such difference does not effectively serve to patentably distinguish the claimed invention over the prior art. The manipulative steps of the invention would be performed the same regardless of the specific data. Further, the structural elements remain the same regardless of the specific data. Thus, this descriptive material will not distinguish the

Art Unit: 3692

claimed invention from the prior art in terms of patentability as the claimed invention fails to present a new and unobvious functional relationship between the descriptive material and the substrate, *see In re Gulack*, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); *In re Lowry*, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994)); *In re Ngai*, 367 F.3d 1336, 1336, 70 USPQ2d 1862, 1863-64 (Fed. Cir. 2004); MPEP § 2106.

Applicant argues that “claim 1 requires ‘in-house inventory’ which is not the same as the ‘in-house products’ described in Manugistics. The ‘in-house inventory’ of claim 1 is used for manufacture of an item required by a customer whereas Manugistics infers that ‘products’ are finished goods. Manugistics at para. 7. Further, Manugistics does not discuss basing the material delivery schedule on the ‘in-house inventory’ as required by claim 1.” (Page 7 of Applicant’s response) Applicant’s argument is not clear because claim 1 does not recite an “in-house inventory.” Instead, claim 1 refers to an “in-transit inventory.” “In-house inventory” is recited as one of two possible inventory options in claim 4; however, the art rejection focuses on the “external inventory” option since only one of the two recited inventory options is required within the scope of claim 4. Further, Applicant’s argument that Manugistics’ tracked in-transit products are finished goods is unpersuasive because many materials are finished goods on some level (even if they are used to make another finished good). Whether or not the tracked product is finished or not, a fair teaching of Manugistics would render the ability to track any type of in-transit product (finished or not) as obvious since the nature of the good does not impede the ability to track its movement during transit. Lilly already addresses the concept of

receiving materials in order to manufacture ordered products; therefore, the Examiner maintains the art rejection, especially as it pertains to in-transit inventory tracking.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5, 8, 9, and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lilly et al. (U.S. Patent No. 5,787,000) in view of Layden ("A Rapidly Changing Landscape") and further in view of Manugistics⁵, as disclosed in "Manugistics Introduces Industry's Only Extended Supply Chain Management Solution."

Lilly discloses a method of scheduling a manufacturing line comprising:

[Claim 1] generating a work schedule and a material delivery schedule in response to an outstanding customer order that includes at least one item, wherein the step of generating the work schedule includes the step of scheduling work to manufacture each item by an operation on a manufacturing line, wherein the step of generating the work schedule comprises adding work to the work schedule (col. 9, lines 1-25), wherein the step of generating the delivery schedule includes the step of scheduling a delivery of material to manufacture each item, wherein the scheduling of the delivery includes scheduling the delivery of the material prior to the time the material is needed according to the work schedule, and wherein the step of generating the material delivery schedule

Art Unit: 3692

comprises adding the delivery of the material from an available inventory of material to an operation of at least one operation on a manufacturing line to the material delivery schedule (col. 4, lines 33-44 -- Each customized order from a customer is integrated into a work schedule; col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22 -- Resource availability, material availability, and work order information are all used to schedule the delivery of needed materials as well as to schedule the ultimate assembly of the ordered product; col. 8, lines 33-67 -- If all materials are currently available, the work order may be scheduled. Otherwise, the work order may need to be rescheduled based on the lead time of the needed materials; col. 9, lines 8-25 -- Work orders may be scheduled by priority; Columns 9-15 discuss the forward and backward scheduling algorithms that may be used to schedule work orders), wherein the available inventory of material includes a hub inventory (col. 8, lines 38-40 -- When inventory is available and currently stocked, it is said to be "in inventory." This inventory is a type of "hub inventory." As a matter of fact, the source of inventory does not affect the claimed structure or manipulatively alter any of the recited functionality; therefore, the term "hub" is treated as a non-functional descriptor of the inventory. Consequently, the term "hub" fails to patentably distinguish the claimed invention over the prior art);

assigning the manufacturing line to the outstanding customer order (abstract; col. 4, lines 33-37 -- When an outstanding customer order is ready to be manufactured, it will be manufactured on an assigned manufacturing line);

providing the material delivery schedule for the delivery of the material to manufacture each item according to the material delivery schedule (col. 5, lines 24-67;

Art Unit: 3692

col. 6, line 65 through col. 7, line 22 -- Resource availability, material availability, and work order information are all used to schedule the delivery of needed materials as well as to schedule the ultimate assembly of the ordered product; col. 8, lines 33-67 -- If all materials are currently available, the work order may be scheduled. Otherwise, the work order may need to be rescheduled based on the lead time of the needed materials);

wherein one or more items are manufactured on the manufacturing line according to the work schedule (abstract; col. 4, lines 33-37); and

obtaining the hub inventory according to the material delivery schedule, wherein the hub inventory is obtained from at least one external material source and is delivered directly to the manufacturing line (Since Lilly teaches that a material availability is assessed by determining when a supply will be received into inventory (col. 8, lines 33-67), this implies that the needed materials may be ordered from an external (i.e., hub) inventory, including a supplier inventory. By definition, an entity that supplies another entity with materials is a supplier of those materials. Also, the source of inventory does not affect the claimed structure or manipulatively alter any of the recited functionality; therefore, the term “hub” is treated as a non-functional descriptor of the inventory. Consequently, the term “hub” fails to patentably distinguish the claimed invention over the prior art).

As per claim 1, Lilly does not expressly teach that the incorporation of the step of providing the work schedule to the manufacturing line, substantially immediately after

Art Unit: 3692

generating the work schedule, for initiating work to mass produce each of the at least one item according to the work schedule nor that all recited steps are repeated a plurality of times during a manufacturing shift. However, Layden discusses order-driven manufacturing scheduling techniques (§ 3) in which dynamic plant management is employed (§ 5), thereby allowing dynamic factories to be “run without a plan at the floor level; orders are launched as soon as they arrive.” (§ 5) Layden’s disclosed scheduling techniques are based upon well-known scheduling theories, including “backward pass” and “forward pass” (§ 26), both of which are utilized by Lilly. Layden’s scheduling techniques allow one to instantly communicate orders to the shop floor, scheduling them as they arrive (§§ 5, 9). Layden states, “Integration of scheduling and material planning balances plantwide priorities against the need for optimal workstation sequencing. The order-of-work is not generated until the operation start time.” (§ 11) Material and resource constraints are taken into account in order to perform rapid resynchronization of customer orders (§ 13). This allows for the immediate release of new orders to the floor in real time upon acceptance and the implementation of last-minute customer order changes as well as the insertion of priority orders (§ 14). Layden’s rapid order flow performs the steps of “reserving resources and material, triggering reorders, and continuously adjusting for status changes” (§ 11). Clearly, Layden bases its principles on the common scheduling techniques utilized by Lilly (e.g., using forward and backward scheduling algorithms to incorporate material and resource availability and generate a production schedule) and enhances them by providing the work schedule to the manufacturing line, substantially immediately after generating the

work schedule, for initiating work to mass produce each item according to the work schedule and repeating all recited steps a plurality of times during a manufacturing shift, thereby making the order-driven manufacturing process more efficiently and effectively responsive to new customer orders, priority orders, last-minute customer changes, etc. Consequently, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to implement these enhancements taught by Layden with the details of Lilly's production planning and scheduling system in order to reap these benefits (i.e., making the order-driven manufacturing process more efficiently and effectively responsive to new customer orders, priority orders, last-minute customer changes, etc.).

Further regarding claim 1, the Lilly-Layden combination does not expressly teach that materials delivered from available inventory are selected from an in-transit inventory. However, "Manugistics Introduces Industry's Only Extended Supply Chain Management Solution" discloses some of the functionality of Manugistics5, which is a Web-enabled supply chain planning and decision-making tool. "By providing real-time visibility into information, including consumer demand, in-transit inventories, manufacturing schedules and plans, and shipment status across their supply chains, as well as their channel partners' supply chains, Manugistics5 will allow companies to make improved supply chain decisions." (Manugistics5: ¶ 1) Users of Manugistics5 "can 'point-and-click' their way from a high-level enterprise view to a shop floor schedule and obtain updated information about the entire supply chain channel, from suppliers, plants and distribution centers, to retail activity...With the Supply Chain Navigator,

planners can determine the most profitable supply chain strategy for sourcing, production, inventory, and vendor/carrier commitments, based on the real-world and real-time constraints of the supply chain.” (Manugistics5: ¶ 5) Manugistics5’s floor schedule is integrated with inventory data in order to facilitate decision-making (Manugistics5: ¶¶ 5, 9) while inventory management capabilities include the ability to monitor in-transit inventory (Manugistics5: ¶ 7). Since the Lilly-Layden combination is applied to an order-driven manufacturing environment (in which perfect timing of the arrival of needed materials is crucial for the reasons discussed above) and Manugistics5 facilitates real-time decision-making in a supply chain, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant’s invention to adapt the Lilly-Layden combination to schedule the delivery of materials based on available inventory, including in-transit inventory, in order to facilitate the prevention of and/or quick resolution of conflicts with respect to product availability by allowing users “to make the best scheduling decisions possible” (as suggested by “Manugistics Introduces Industry’s Only Extended Supply Chain Management Solution,” see ¶ 6), thereby improving the overall efficiency of the supply chain.

[Claim 2] Regarding claim 2, since the Lilly-Layden combination teaches the details of a production planning and scheduling system that resynchronizes the production schedule and ordering of materials in real-time responsive to new customer orders, priority orders, last-minute customer changes, etc., the Examiner asserts that the limitation “wherein the scheduling of the delivery of the material prior to the time the material is needed according to the work schedule includes scheduling the delivery of

the material at most one repetition prior to the time the material is needed” is addressed by the Lilly-Layden combination.

[Claim 3] Lilly discloses that the material is delivered from an available inventory of material at a material source (col. 5, lines 24-67; col. 8, lines 33-67 -- Inherently, the entity that makes a material available can be viewed as a material source).

[Claims 4, 5] Since Lilly teaches that a material availability is assessed by determining when a supply will be received into inventory (col. 8, lines 33-67), this implies that the needed materials may be ordered from an external inventory, including a supplier inventory. By definition, an entity that supplies another entity with materials is a supplier of those materials.

[Claim 8] Lilly discloses that the adding the work to the work schedule comprises adding the work to the work schedule at a start time; and the adding the delivery to the material delivery schedule comprises adding the delivery to the material delivery schedule at a material delivery time prior to the start time (col. 4, lines 33-44 -- Each customized order from a customer is integrated into a work schedule; col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22 -- Resource availability, material availability, and work order information are all used to schedule the delivery of needed materials as well as to schedule the ultimate assembly of the ordered product; col. 8, lines 33-67 -- If all materials are currently available, the work order may be scheduled. Otherwise, the work order may need to be rescheduled based on the lead time of the needed materials; col. 9, lines 8-25 -- Work orders may be scheduled by priority; Columns 9-15

discuss the forward and backward scheduling algorithms that may be used to schedule work orders);

[Claim 9] Lilly discloses determining an expected availability of the identified material from the available inventory and wherein the adding the work to the work schedule includes adding the work at a start time after the expected availability of the identified material (col. 4, lines 33-44 -- Each customized order from a customer is integrated into a work schedule; col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22 -- Resource availability, material availability, and work order information are all used to schedule the delivery of needed materials as well as to schedule the ultimate assembly of the ordered product; col. 8, lines 33-67 -- If all materials are currently available, the work order may be scheduled. Otherwise, the work order may need to be rescheduled based on the lead time of the needed materials; col. 9, lines 8-25 -- Work orders may be scheduled by priority; Columns 9-15 discuss the forward and backward scheduling algorithms that may be used to schedule work orders).

[Claim 12] Lilly discloses that the adding the work to the work schedule comprises adding the work to the work schedule according to a priority of the customer order (col. 5, lines 62-63; col. 9, lines 12-19).

[Claim 13] Lilly discloses that the adding the work to the work schedule comprises adding the work to the work schedule according to an order date of the customer order (Columns 9-15 discuss the forward and backward scheduling algorithms that may be used to schedule work orders).

[Claim 14] Lilly discloses that the item is a commodity (col. 4, lines 35-38).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susanna M. Diaz whose telephone number is (571) 272-6733. The examiner can normally be reached on Monday-Friday, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kambiz Abdi can be reached on (571) 272-6702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Susanna M. Diaz/
Primary Examiner, Art Unit 3692
January 21, 2008